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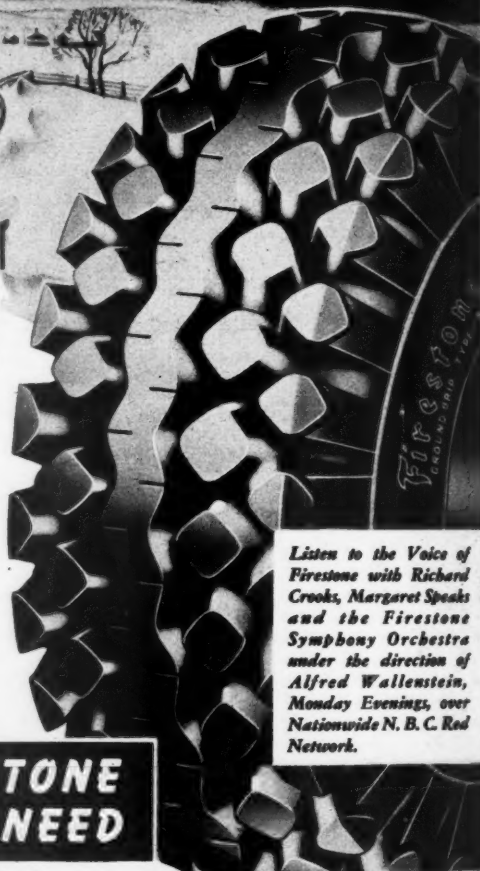
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FOR PASSENGER CARS**



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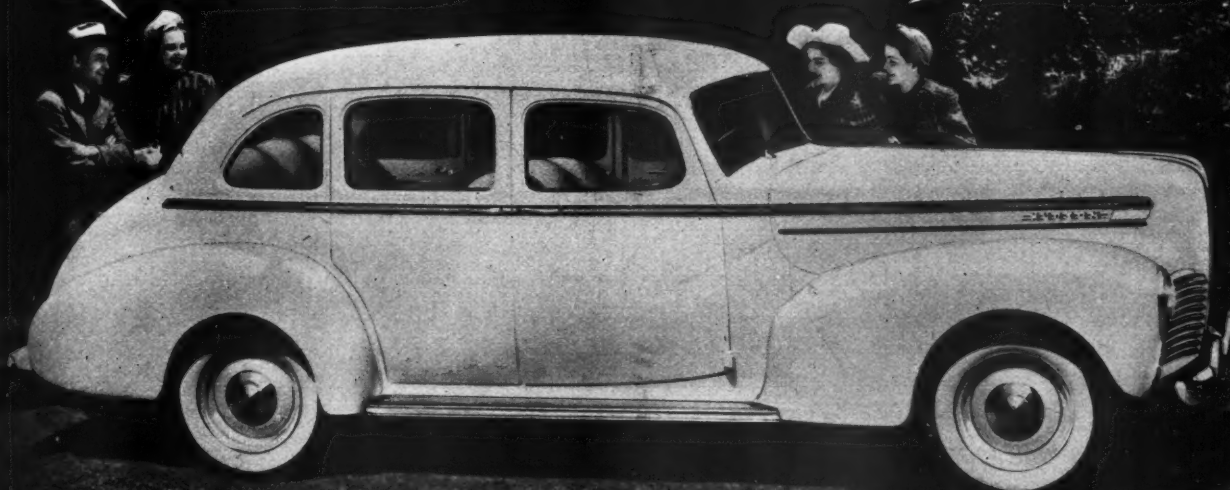
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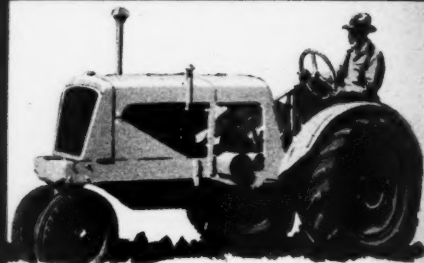
Notice that every husky lug on this tire stands alone—like the lugs on steel wheels.

That's mighty important if you

want to work in soft ground—or on sod that's wet with dew early in the morning.

Notice that those lugs are even-spaced. That means even pull in the field—and smooth riding on pavements. There's no slip-and-grip in that tread to cause jerks or start spins.

Notice that those lugs are but-



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tressed at the base—re-enforced to prevent any chance of lug tear.

Notice that the name on this tire is *Goodyear*. That means it's built from the expert experience of the

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**Even spacing — no jerks.** See how those lugs are placed — with plenty of space between them — and all spaced the same. That means an even pull — no jerks to start slipping.

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OCTOBER  
VOL. 50

1940  
No. 10

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# AMERICAN FRUIT GROWER

The  
NATIONAL FRUIT MAGAZINE

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## AMERICAN FRUIT GROWER

Published Monthly by  
AMERICAN FRUIT GROWER PUBLISHING CO.  
370 Ontario St., Cleveland, O.

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1000 LEXINGTON, NEW YORK CITY, Room 212  
Telephone Plaza, Phone-Circle 7-1963.

ADVERTISING: C. BILLINGSLEA CO., 73  
Madison St., Chicago, Ill., Phone-Central

### SUBSCRIPTION RATES

One Year (12 Issues) \$1.00. Five Years \$5.00.  
Foreign, Canada and Mexico \$1.50 per year.  
Single Copy, 10 Cents.

Second-class matter of Post Office at  
Cleveland, Ohio, under the Act of March 3, 1879.  
Postpaid entry at Mount Morris, Illinois.

[PRINTED  
IN U.S.A.]

## DESIGN FOR PLANTING THE ORCHARD

THE fruit industry of America is not and never can be static. Despite a well-organized and worthy project of removal of "excess baggage" from the orchards of the country, there will be some new plantings this autumn. While the total crop of most fruit must be reduced, there is justification of maintaining orchards in favorable localities and in favorable sites. Hence, AMERICAN FRUIT GROWER again presents a Fall Planting Number.

If the commercial fruit grower who must earn a livelihood from his enterprise is to learn from experience and from research he will know that a profitable and long-lived orchard can be grown only on a favorable site. We must salute the careful work that has been done to establish beyond controversy that a fairly deep, well-drained soil is essential. No cultural treatment, no fertilizer program, is a substitute. Pope was not informed on orchard problems when he wrote the classic lines:

Where grows, where grows it not.

If vain the toil,

We ought to blame the culture, not the soil.

So we bring this important finding again to your attention.

A second leaf from the book of experience is that of a knowledge of topography. Elevation above surrounding country and nearness to large bodies of water are the surest guarantees against the hazard of frost. So far as we are aware, no recent research has confirmed this observation, but the experienced fruit grower is conscious of it.

The third axiom is to make a careful choice only of varieties which have market appeal. It took a hundred years for the McIntosh apple to be recognized as a valuable sort. Even today widespread trials and considerable periods of time are required to learn the facts and foibles of a variety. Professor Hedrick once said that every variety may be characterized by its faults, and this will probably always be true. The New York Experiment Station at Geneva has already introduced some excellent varieties of grapes. This year they are to introduce two new red ones. This work is in line with introduction of superior varieties of other fruits from the same source and from elsewhere. So that the variety situation is not static but progress of importance is being made.

Another of the important contributions which this generation has made to horticulture is that of the identification of varieties in the nursery row. The situation may be bad enough today but those who remember the experiences of earlier years will know what a tragedy it was to plant an orchard of some cherished varieties, only to find several years afterward that the trees were not the ones that were ordered! Now that it is possible to eliminate mixtures in the nursery, there is little excuse for a continuance of the former difficulty and the grower has every right to insist on certified trees and thus encourage the nurseryman to make use of the knowledge available.

The orchard well started with the best varieties, on a proper soil type, in a frost-free location, will remove several important limitations with which older orchardists contended. Intelligent forethought is as important in planting an orchard as in any other business venture. A design for planting must be made in advance.

# THE BEST ALL-'ROUND TRUCK VALUES MONEY CAN BUY!

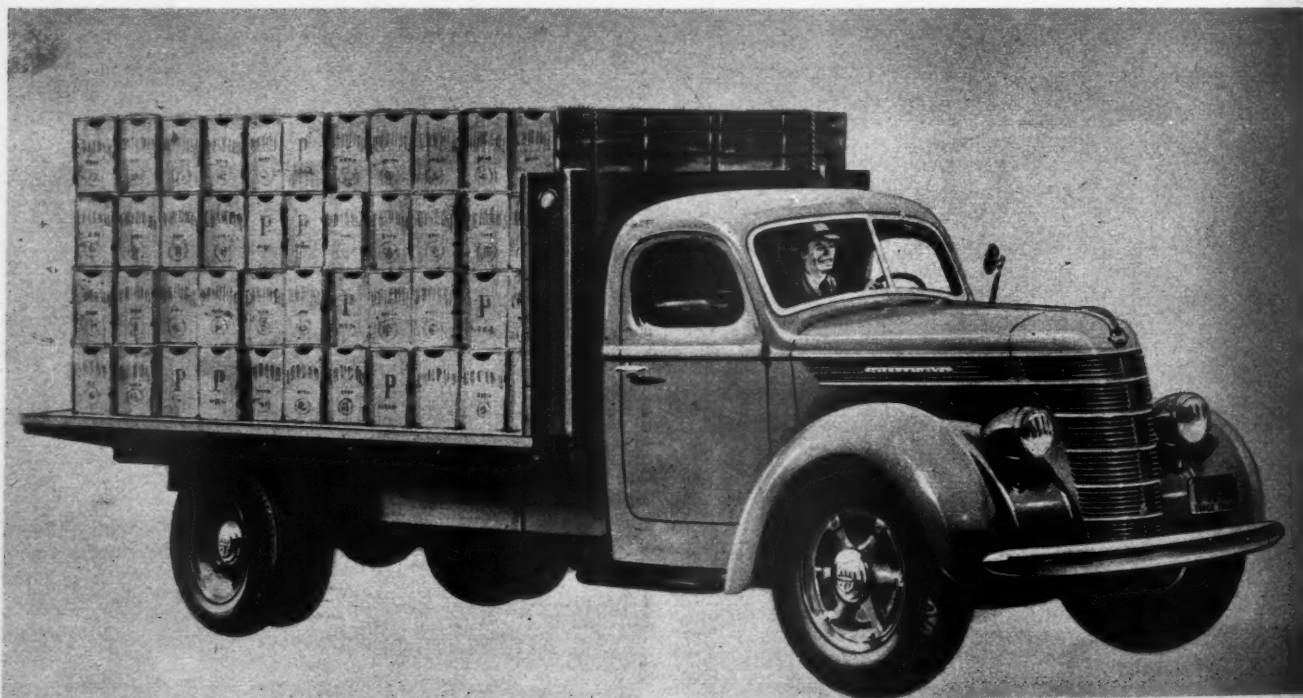
Join the big family of International owners next time you buy a truck—and enjoy the *performance* and *economy* it will give you over a *long period of years*.

There's *real satisfaction* hauling your loads with an International. That's because this organization *knows how* to build trucks for the farm—trucks that are readily adaptable to every type of load and any kind of going.

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## INTERNATIONAL TRUCKS



# HERE IS THE "INSIDE STORY" OF PRE-HARVEST DROP

## ABSCISSION OR DROPPING OF APPLE FRUITS

By MONROE McCOWN  
Purdue University Agricultural Extension

THE pre-harvest drop of mature apples is always a potential source of heavy loss to the orchardist (figure 1). In 1939, the rate of drop was abnormally great—disastrous in some areas. The experiences of the past season and the introduction of spray materials designed to reduce the rate of fruit drop have made orchardists extremely abscission conscious. This has increased their desire for further information concerning the nature of the process which results in the natural separation or abscission of apple fruits.

The term abscission, as it will be used in this discussion, will mean the natural separation of the fruit from the tree resulting from chemical changes which allow the breakdown and separation of cell walls in the fruit stem.

Apple flowers are borne in clusters (figure 2). The basal portion of current season's stem growth is termed the cluster base. The tip portion of this main stem, limited to the

1—The pre-harvest drop of apples is a source of grave concern and heavy loss to fruit growers.

2—Delicious apple cluster immediately after dropping of petals. Stem portions of cluster are termed: A, cluster base; B, peduncle, the short tip of the main stem to which the bases of the pedicels or stems, C, of the flowers or fruits are attached.

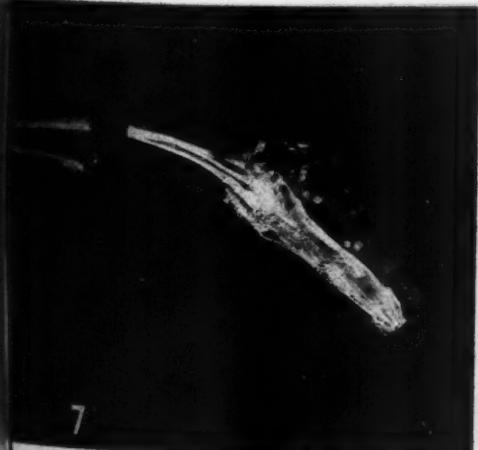
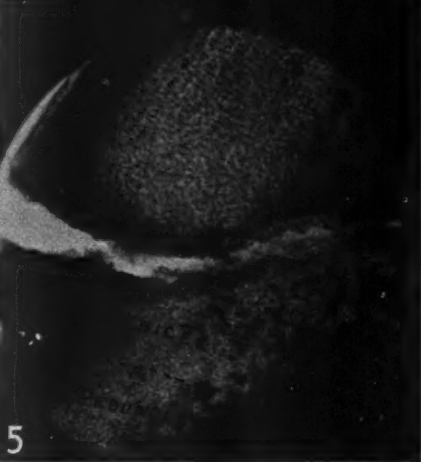
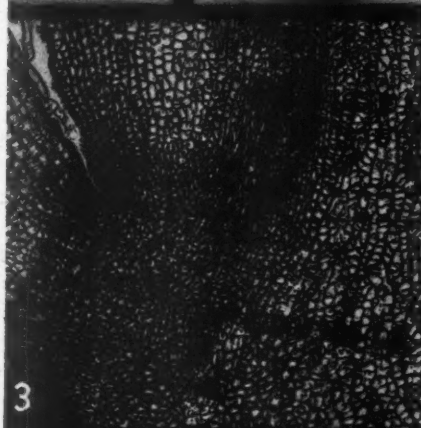
3—Very thin section cut lengthwise through portions of bases of two apple flower pedicels and tip of peduncle. (Magnified to about 90 times normal size.) Abscission of flowers and young fruits results from (1) cell division forming an abscission layer across base of stem and (2) dissolving away of outer wall layers in cells in newly formed abscission layer. Abscission layer usually is formed in area enclosed by dotted line. No abscission layer forms in flower stems or fruits which remain on tree.

4—Very thin section cut lengthwise through portion of base of pedicel or stem and tip of peduncle of a mature McIntosh. The mature stem is made up of thick-walled cells, is very tough and hard. (Magnified to about 65 times natural size.)

5—Abscission of apple stem, allowing the fruit to drop, may begin in outer bark tissue or cortex. Separation is occurring in this mature Golden Delicious pedicel above union with the peduncle.

6—Cells of tissues at base of mature apple stem separate as result of dissolving away of outer layers of cell walls which cement the cells together in active tissues. In this Golden Delicious stem, abscission began in the outer bark or cortex and progressed across the tissues toward woody cylinder in center of stem. Bundles of fibers in path of abscission usually are broken by mechanical strain.

7—This Golden Delicious spur still held an apple at time of collection, although natural abscission of cells had severed the bark tissues at base of apple stem. The woody cylinder which still supported the fruit, and which has been exposed in this photograph by removal of the section of loose bark, usually is severed by combined wind action and weight of fruit after this stage is reached.



7

6

5

# AMERICAN FRUIT

## ANNUAL NATIONWIDE • STRAWBERRIES •



The Blakemore (yellows resistant) which rates first among the nation's growers.

### STRAWBERRY RATINGS BASED ON NURSERY SALES

#### NATIONAL

1. Blakemore (yellows resistant)
2. Missionary
3. Klondike
4. Howard 17 (Premier)
5. Dunlap (Senator Dunlap)
6. Mastodon
7. Gem
8. Dorsett
9. Aroma
10. Catskill
11. Fairfax

#### Early Crop Region (Fla., Ala., La., Miss., Tex.)

1. Missionary
2. Klondike
3. Blakemore (old strain)
4. Texas

#### Second Early Crop Region (Ark., N. C., S. C., Tenn., Va., Calif.)

1. Blakemore (yellows resistant)
2. Missionary
3. Klondike
4. Aroma
5. Champion Klondike
6. Blakemore (old strain)
7. Dorsett
8. Howard 17 (Premier)

#### Intermediate Crop Region (Delaware N. J., Md., Ky., Ind., Ill., Kans., Mo., Iowa, Okla., Calif.)

1. Blakemore (yellows resistant)
2. Howard 17 (Premier)
3. Dorsett
4. Catskill
5. Fairfax
6. Aroma
7. Chesapeake
8. Gem
9. Mastodon
10. Dunlap (Senator Dunlap)

#### Late Crop Region (N. Y., Pa., Ohio, Mich., Wis., Minn., Wash., Ore.)

1. Dunlap (Senator Dunlap)
2. Howard 17 (Premier)
3. Catskill
4. Dorsett
5. Gem
6. Mastodon
7. Rockhill
8. Fairfax

"Doubtless God could have made a better berry, but doubtless God never did," wrote Henry Ward Beecher about the strawberry. Who can disagree with him, especially after having known the delights of strawberry shortcake. Because of the great national appetite for strawberries, countless varieties have been bred in the hope of obtaining the Utopian berry having all the excellent features of other varieties and none of their faults.

OUT of this multitude of strawberries has risen one variety which is the unanimous choice of the nation's strawberry growers.

The Blakemore yellow-leaf resistant variety reigns supreme over all its strawberry relatives, according to AMERICAN FRUIT GROWER's planting survey.

The original Blakemore strawberry was susceptible to the yellow-leaf disease and it was only through chance that one yellows-free strain was discovered by Tennessee grower Ralph McUmbler and his foreman, Jesse Needham, among a lot of poorly packed plants damaged by shipment.

National No. 2 rating goes to Missionary, which is a strong favorite in Florida.

Klondike, a variety originated by R. L. Cloud of Independence, La., took third place close behind Missionary and is the leader in Louisiana.

Howard 17 (Premier) ended in fourth place, with Dunlap (Senator Dunlap) fifth, and the everbearing varieties Mastodon and Gem sixth and seventh, respectively.

Dorsett barely nosed out Aroma for the No. 8 position. Aroma is ninth, Catskill tenth and Fairfax eleventh.

As expected, Missionary took top honors in the Early Crop Region, which includes the states of Florida, Alabama, Louisiana, Mississippi and Texas. Klondike came next in the No. 2 spot and Blakemore (old strain) ended third. Texas finished in fourth place.

In the Second Early Crop Region of Arkansas, North Carolina, South Carolina, Tennessee, Virginia and California (southern district), Blakemore yellows-resistant variety scored an overwhelming victory over its nearest rival, Missionary.

Missionary took second position, with Klondike third and Aroma fourth. Champion Klondike ended

### These Ratings Based on Nursery Sales Only

The ratings for both strawberries and cherries as herewith published are based only on sales made by nurseries throughout the country during the past year. The ratings indicate what varieties growers are purchasing and planting.

These tabulations are not intended to indicate what varieties are recommended for planting or what varieties hold most promise for the future. The ratings are simply a record of nursery sales only.—The Editors.

fifth, Blakemore (old strain) sixth, Dorsett seventh and Howard 17 (Premier) eighth.

In the Intermediate Crop Region, composed of the states of Delaware, New Jersey, Maryland, Kentucky, Indiana, Illinois, Kansas, Missouri, Iowa, Oklahoma and California (except southern district), Blakemore yellows-resistant strain won the honor of being the most planted variety.

Howard 17 (Premier) finished second, followed by Dorsett in third place. Catskill ended in fourth position with Fairfax fifth, Aroma sixth and Chesapeake seventh. Gem and Mastodon, the everbearing twins, took eighth and ninth positions, respectively. Dunlap (Senator Dunlap) finished tenth.

In the Late Crop Region, made up of New York, Pennsylvania, Ohio, Michigan, Wisconsin, Minnesota, Washington and Oregon, more winter-resistant types of strawberries predominate. Dunlap (Senator Dunlap) is first, while Howard 17 (Premier) is close behind in the No. 2 position.

Catskill is third, Dorsett fourth, Gem fifth and Mastodon sixth. Rockhill edged out Fairfax for seventh place and Fairfax took eighth.

# T GROWER PRESENTS VARIETY SURVEY

## • CHERRIES •

With the international scene crazily shifting pattern on the slightest provocation, and with whole nations feverishly changing policies to meet new threats, it would be entirely human to think that similar upheavals are taking place in the fruit variety situation. But Nature works on a different plan than Man and changes have been few as far as cherry varieties are concerned, according to AMERICAN FRUIT GROWER'S 1940 planting survey on sweet, sour and duke cherries.

**B**REEDING of new cherry varieties has been slow both because of the lack of hardiness in cherry trees, which means they cannot be grown throughout the country, and because the seed often fails to germinate.

### Sour Cherry Ratings

Montmorency, the well-known and reliable cherry which is named after the valley in France in which it originated, scored a landslide victory in the national sour cherry field. Its vigor, productivity and adaptability have endeared it to the hearts of sour cherry growers and it stands firm in its present position.

Early Richmond took second place in number of trees planted and English Morello took third, being approximately half as popular as Early Richmond. Richmorency rated fourth.

By sections, Montmorency is favored in both sour cherry growing regions—the Pacific Coast Region and the Great Lakes section, which includes the states of New York, Ohio and Michigan.

Second position in the Pacific Coast Region is held by English Morello, and Early Richmond is third among the few sour cherries grown in this region.

In the Great Lakes Region, English Morello barely beat out Early Richmond for second place. Early Richmond is third, Richmorency fourth and Giant Montmorency fifth.

### Sweet Cherry Ratings

Black Tartarian is favorite on the National sweet cherry forms and is the No. 1 sweet cherry. Napoleon is a close second and Windsor is third, with Bing fourth. Bringing up the rear are Schmidt in fifth place, Lambert sixth and Governor Wood seventh.

The principal commercial production of sweet cherries is confined to the Pacific Coast states. To two brothers, Henderson and Seth Lewelling, goes the honor of having introduced the variety Napoleon, which leads in this section. The brothers carried the variety Napoleon from Iowa to Milwaukie, Oregon, in 1848, by covered wagon and later from this stock and other cherries, developed the Bing cherry.

Bing ended second, Black Tartarian third and Lambert fourth. Lambert also owes its success to the Lewelling brothers, for it originated as a seedling under a Napoleon tree planted by Seth Lewelling in 1848.

Black Republican, which is possibly a cross between Napoleon and Black Tartarian, and which also originated as a seedling in Seth Lewelling's orchard in 1860, ended in fifth place in the Pacific Coast section.

In the Great Lakes Region (New York, Ohio and Michigan), Windsor took the No. 1 position. Black Tartarian is a close second. Napoleon is third and Schmidt fourth. Governor Wood took fifth place, Bing sixth and Lambert seventh.

### Duke Cherry Ratings

Hybrid or Duke cherries made a poor showing when compared with sweet and sour varieties. Some of them have excellent characteristics but seem to lack productivity.

May Duke took National No. 1 position, with Late Duke second and Royal Duke third.

Pacific Coast growers preferred Late Duke first, May Duke second and Royal Duke third.

Michigan growers favored Late Duke and put May Duke in second place. In New York, May Duke is favored.



The Montmorency cherry is the most planted sour cherry by a wide margin.

### CHERRY RATINGS BASED ON NURSERY SALES

#### SOUR CHERRIES—NATIONAL

1. Montmorency
2. Early Richmond
3. English Morello
4. Richmorency

#### Pacific Coast Region

1. Montmorency
2. English Morello
3. Early Richmond

#### Great Lakes Region (N. Y., Ohio, Mich.)

1. Montmorency
2. English Morello
3. Early Richmond
4. Richmorency
5. Giant Montmorency

#### SWEET CHERRIES—NATIONAL

1. Black Tartarian
2. Napoleon
3. Windsor
4. Bing
5. Schmidt
6. Lambert
7. Governor Wood

#### Pacific Coast Region

1. Napoleon
2. Bing
3. Black Tartarian
4. Lambert
5. Black Republican

#### Great Lakes Region

1. Windsor
2. Black Tartarian
3. Napoleon
4. Schmidt
5. Governor Wood
6. Bing
7. Lambert

#### DUKE CHERRIES—NATIONAL

1. May Duke
2. Late Duke
3. Royal Duke

#### Pacific Coast Region

1. Late Duke
2. May Duke
3. Royal Duke

#### Michigan

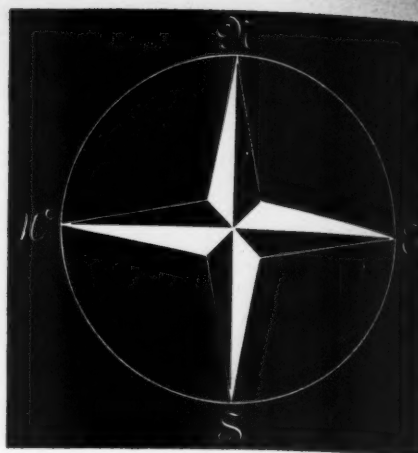
1. Late Duke
2. May Duke

#### New York

1. May Duke

# FALL VERSUS SPRING PLANTING

## EXPERT OPINIONS FROM DIFFERENT POINTS OF THE COMPASS



### CLIMATIC CONDITIONS GOVERN

By T. J. Talbert

Missouri College of Agriculture

It seems that comparatively little attention has been given by investigators to the proper season for planting and its subsequent effect upon fruit trees. Spring appears to be preferable toward the north, while fall is usually considered best toward the south. This difference is due mainly to the unlike climatic conditions.

A review of horticultural literature indicates that those who recommend spring planting base their opinion upon experience in severe climates, while those who recommend fall planting have experienced only the milder temperatures. Early spring-planted trees usually begin root growth no sooner than those late fall-planted. With the latter, root formation begins about the first of January and proceeds slowly through the winter below the frost line.

For very cold winter climates with deep soil freezing, fall planting in soil that does not have time to settle may cause roots to freeze. For this reason, spring planting is often better. Where the climate is less severe, however, late fall or early winter planting may give the grower more time to properly perform his work. Furthermore, the young trees become established and anchored in the soil and some root development may take place. In the spring, water and nutrients may be absorbed as rapidly as new shoots and leaves use it. Where winter injury does not occur, fall-planted fruits usually make a more regular and satisfactory growth than those spring-planted. But for most sections, tender or slightly tender species like the peach or Japanese plum, which are subject to winter injury, are more safely planted in the spring.

The Missouri Agricultural Experiment Station has found that sour cherry trees when set in the late fall or early winter have uniformly given better stands than when the trees were planted in the spring. The investigational work showed, in fact, that an increase of from 30 to 70 per cent was made in the number of trees that lived and grew profitably. Spring-planted trees after a period of three to five years had not caught up in growth or production with the trees planted in the fall.

These investigations indicate that for conditions comparable to those of Missouri sour cherries for best results should be planted in the fall or early winter. Since the sweet cherry is comparable to the peach in time of blooming and hardiness, it is usually best to plant it in the season of the year best suited for peaches.

Working with the Aroma variety of strawberry for the past three years in the Ozarks of southwest Missouri, the Missouri station has found that plantings made on November 15 and December 1 have, in general, given a better stand and more vigorous plants than plantings made in early spring. It was also found that for that section, proper mulching is required for late fall and

early winter planting. Furthermore, producers generally have more time to devote to careful setting and care in the fall or early winter than they do in the spring rush of work.

### SPRING PLANTING DESIRABLE

By John C. Snyder

State College of Washington

In the State of Washington fruit trees are usually planted in the spring. It is advisable to plant as early in the spring as the ground can be worked. Planting early enables the trees to become settled and to start growth before hot weather. The fact that well-matured nursery stock can be obtained for spring planting, but not always for fall planting, makes many growers favor spring planting. Nursery stock shipped at the proper time can be set in the spring while in prime condition. Occasionally it is necessary to hold the trees for a short time before setting. This is done by "heeling" them in, or placing them in suitable cold storage.

When spring planting is practiced, the open land can be left in cover crops during fall and winter and disked before the trees are set the following spring. The land can be put into shape easier before the trees are planted than after they are planted. In irrigated sections soil moisture is usually sufficient in the spring to start the trees, and by the time more is needed irrigation water is available. This is sometimes an important advantage of spring planting where irrigation is practiced.

Trees planted in the fall are sometimes exposed to root injury. This is particularly true during dry falls when the trees are set in dry soil. Frequently irrigation water is not available after October 1. If the trees have not been set before this date and fall rains are not abundant, the trees go into the winter in a dry condition and as a result suffer root desiccation.

In the coastal area where the springs are sometimes wet and late, fall planting can sometimes be done easier and earlier than spring planting. Because extreme wet springs are rather uncommon, spring planting can usually be relied upon, even in the coastal area. Orchards set in the fall usually grow up to a dense cover of weeds which must be cleaned out in the spring. The job of cleaning them out, however, is less serious in orchards than in small-fruit plantings.

### YEAR'S GROWTH GAINED BY PLANTING IN FALL

By R. S. Dillon, Sr.

Hancock, Md.

DURING the past 40 years I have planted approximately 100,000 apple and peach trees in the immediate neighborhood of Hancock. Almost all of these I personally trimmed.

I have found that it is best to plant both apple and peach trees during the late fall

before the ground has frozen for the winter. The roots are trimmed rather closely and care is taken to spread them out; otherwise they may grow together, and root rot may set in if they become a jumbled mass of growth.

The ground around the roots is loosened as much as possible, and clods of grass are discarded in order to avoid air spaces which would permit freezing of the roots, and to eliminate the opportunity for mice to obtain right-of-way to the tender roots. If the ground is too dry, the soil immediately around the roots is moistened. Approximately one-half pound of ground bone meal is added to enrich the earth immediately around the tree.

When trees are planted in the fall they start to grow as soon as the weather begins to warm up in the spring. The freezing and thawing of the ground during the winter has settled the dirt around the roots, so that they start off immediately. During some cold winters the portion of the tree above ground, especially on peaches, has frozen, but this damage has been slight, and the instances where the entire tree, including the root system, has died because of arctic weather has been rare. To reduce such damage, the earth is mounded around the young peach tree for about six inches above the bud. In the early spring this dirt is removed.

One-fourth pound of nitrate of soda is put around the tree in a circle some six inches from the base early in the spring. Late in May another quarter pound is applied about the same distance from the tree.

I have found from my experience over these 40 years that trees thus planted in the fall are in many instances a full year ahead of trees planted the following spring. By the end of their first growing season they have almost always made a good growth while those planted in the spring often have not started to grow until late in the summer. The growth of the fall-planted trees has had a chance to toughen during the late summer while the growth of the spring-planted tree will sometimes freeze back if the winter is too cold. With the root system of the spring-planted tree still quite tender, this damage may prove to be very severe.

### REASONS FOR SPRING PLANTING

By E. Stuart Hubbard

Poughkeepsie, N.Y.

IN the Hudson River Valley probably 99 per cent of the fruit trees have been planted in the spring. The main reasons for this are, usually: 1. Danger of mouse, rabbit or winter injury during the first winter. 2. Risk of roots drying or freezing if not firmly planted and banked or mulched. 3. Saving of six months' investment charges. 4. Natural feeling that spring is planting season. 5. Indecision as to what varieties to plant.

There may well be conditions or circumstances when fall planting is desirable. Among these are: 1. To secure fresh-dug

(Continued on page 20)

# AFTEREFFECTS

## OF THE NEW ENGLAND HURRICANE

# ON FRUIT TREES

By H. A. ROLLINS  
University of Connecticut

WHEN the New England skies had cleared following the phenomenal September hurricane of 1938, fruit growers in the storm's path found practically all of their trees badly damaged. It was estimated that about 25 per cent of the apple trees in New England's commercial orchards were seriously damaged and that about one-third of these were ruined.

The tree injury was largely confined to the root system, for in many orchards trees were actually blown over so that roots were exposed. In some orchards there was considerable breakage in the tops and severe fruit spur injury on the windward side of the trees. The damage to New England orchards was most severe in Rhode Island, eastern Connecticut, eastern Massachusetts and southern New Hampshire. Since the ground was saturated with moisture because of heavy rains preceding the hurricane, fruit tree roots were generally pulled out of the ground rather than broken.

Growers were encouraged to pull these trees back slowly, to dig sufficiently to place the roots back in their original position in the ground and to see that the trees were securely guyed to hold them in position. Most of the New England growers set up relatively young apple trees that had been blown over if they were profitable varieties, in good vigor, on good orchard soil and if not more than one-half of the root system had been broken. In most cases, these trees were pulled back into an upright position as soon as possible after the storm.

Unfortunately, the 1939 growing season was extremely dry in most of New England. In spite of this dry season, the hurricane-damaged trees produced a good crop of fruit except where the root injury was extremely severe or where trees were growing on poor soils that would normally suffer during a dry season. Many orchard soils were in need of moisture during late June and continued to be dry until September. These invalid trees started the winter of 1939 and 1940 with a shortage of moisture in the soil. However, there

was an excessive amount of rain during the spring and early summer of 1940 and there has been little indication of a moisture shortage during the present season until August. Rainy weather during the apple blossom period this year resulted in a relatively light set of fruit.

In general, these hurricane-damaged apple trees showed better leaf color and more terminal growth in 1939 than had been anticipated. They also matured a better crop of apples than had been expected. Upon examination during the late summer of 1939, we were able to find some 24 to 30 inches of new root growth on trees that had been blown over. It was very noticeable that most of the new root growth started from the main roots near the trunk and little root activity had developed on the ends of the larger roots that had been so carefully placed back into the soil. It is quite apparent that it will take some time for these trees to grow sufficient new roots to form a reasonable anchorage for the weakened trees. Upon further examination during the late summer of 1940, we found that new root growth during the two years had developed to a length of about eight feet under favorable conditions.

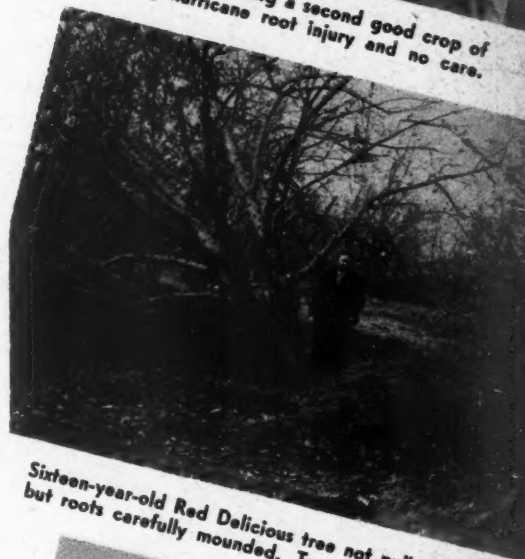
There is, naturally, a great difference in the amount of recovery showing on these hurricane-damaged trees. As might be expected, trees under 10 years of age show less weakness than trees from 10 to 20 years of age. The larger, mature trees, even though they were in good general vigor, show definite signs of weakness. Trees that are growing on a good deep orchard soil, that were heavily mulched and well guyed are showing less weakness than trees of the same age that have not been given reasonable care.

Among other problems, both the meadow mice and the pine mice have taken advantage of any loose soil around the trunk and main roots and have caused some damage to apple tree roots since the hurricane. Most growers have taken mouse control seriously and have used the rodenticide prepared by the U.S. Biological

(Continued on page 18)

AMERICAN FRUIT GROWER

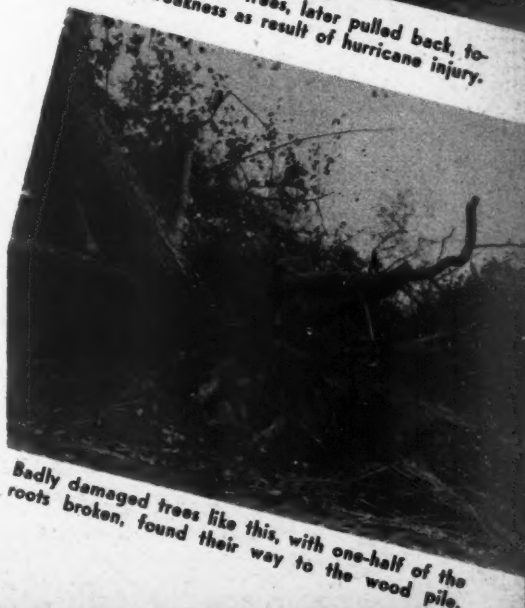
Mature apple tree producing a second good crop of apples following hurricane root injury and no care.



Sixteen-year-old Red Delicious tree not pulled back but roots carefully mounded. Tree response good.



Five-year-old McIntosh trees, later pulled back, today show no weakness as result of hurricane injury.



Badly damaged trees like this, with one-half of the roots broken, found their way to the wood pile.



The Delicious tree on the left was planted in 1927 as a whip and was transplanted when six years old. The Cortland tree on the right was planted in 1933, at the same time the tree in photo at left was transplanted. It is about same size, and is more vigorous.

## WHAT DOES THE BEARING APPLE TREE SAY ABOUT TRANSPLANTING

By RICHARD T. MEISTER

IT WOULD be no exaggeration to say that every fruit grower has looked at his filler trees when they were about 15 years old and groaned at the thought of cutting them out. It is against a thrifty grower's instinct to cut out trees in the prime of life which produce profitable crops.

It is at a time like this that the disturbing question, "Shall I transplant?" climbs into the mind of the orchardist and makes him doubtful about destroying the filler trees.

He may lay awake nights trying to figure out an answer to this perplexing question. Usually he loses to temptation and with some misgivings goes ahead and transplants the trees in a sort of homemade experiment.

Will he continue to transplant after his first experience, or will he resolve never to re-set another apple tree?

Opinion is divided among growers as to the proper procedure to follow. Some claim it is costly and does not pay, and others believe it sound orchard practice when done under favorable conditions.

What does King Apple himself have to say when he is transplanted from one orchard to another?

He states emphatically that he will not go on producing the crops he bore as a filler tree because transplanting seriously weakens him.

He shows this by not producing for several years after being re-set. Generally, three to four years are considered ample time to bring transplanted trees back into normal bearing and growth. That is, of course, if the operation is successful and there are no complications like a hot, dry summer following the transplanting.

From experiments conducted by the Vermont Experiment Station it was found that moved trees were slow to resume heavy production.

Three years after moving, 31 transplanted trees bore 2043 apples, and 31 unmoved trees produced 9731 apples. With these trees production wasn't normal even after three years.

It has been proved that the older the tree the more serious will be the transplanting operation. At Vermont, it was found that twig growth was reduced from 11 to 57 per cent on two-year-old trees and from 90 to 97 per cent on nine to 10-year-old trees.

"How should I transplant?" is a question many growers ask and one of vital importance to the apple tree.

An Ohio grower merely pulled his six-year apple trees out of the ground with a tractor and then replanted them and he says that most of them did fairly well.

Some growers dig out the main roots as far as the spread of branches and then remove the tree and place it in a hole, with trenches dug to accommodate each root.

But Mr. Apple Tree claims he likes the ball method of transplanting best. It consists of digging a trench around the tree and burlaping and roping the ball, especially if the soil is light.

A New Hampshire grower who was very successful in transplanting trees digs a trench around the tree two and one-half feet deep and undercuts the last six inches so the canvas within which the ball is wrapped will fit under the tree. He used a telephone truck derrick to pull the trees out and claims he moved 1700 McIntosh trees at a cost of \$2.50 to \$3 per tree and lost only seven trees.

In order to determine exact distances, it is recommended that the width of the ball be about one foot for every inch in diameter of the trunk and that the depth of the ball be from one-half to two-thirds the diameter of the ball.

In Queenston, Ontario, McIntosh trees were moved in the winter. The frozen earth was dug to a depth of 20 to 24 inches at a distance of three feet six inches from the trunk. The tree was placed in a hole four inches larger than the ball of dirt, or seven feet four inches. It was figured that it cost about 75 cents to dig each hole, or \$1.50 per tree. To get the trees out of the ground, a hole one and one-eighth inches in diameter was bored through the trunk about one foot above the ground. A bolt was inserted in this hole and nuts screwed up from both sides. Felt washers under the nuts protected the trunk of the tree. The tree was then lifted out by means of a home-made derrick which applied the force to both ends of the bolt. Later the hole was filled with grafting wax. All trees were pruned to the same diameter as the ball of earth. In the first year the blossoms or fruit were removed and in the second year a crop of three to five bushels was harvested.

After being planted in a new position, the apple tree begins a period of convalescence. A good mulch is desirable to promote favorable soil conditions. Applications of fertilizers will stimulate new growth and will help the tree.

If the operation is successful and the tree again flourishes and bears fine apples, the grower will probably congratulate himself on his fine work. But congratulations should be delayed until costs are figured.

F. H. Ballou of the Ohio State Experiment Station says transplanting bearing apple trees does not pay. Starting anew with thrifty young nursery-grown trees is much more satisfactory according to Mr. Ballou.

At the Ohio farm of Ivan Quick this was demonstrated by two plots of trees. One consisted of 12-year-old trees transplanted when six years old and the other was made up of seven-year-old trees grown from one-year-old whips. Hardly any difference existed between them in size, and it was evident that the trees grown from whips were more vigorous.

As one grower put it, "There is little prospect of profit from such adventure unless every condition such as variety, vigor of tree, depth of soil, cheapness of labor, market advantages, etc., are exceptionally good."

King Apple declares he can stand transplanting operations if skill and care are used. But growers' cost books say that moving mature apple trees is most often put down in red ink, and very seldom in black ink.



What happens when a hillside orchard is clean cultivated is shown in this picture of an apricot orchard. Over 400 tons of topsoil per acre lost by erosion.



This is the same orchard as in photo on left, several years later. A protective cover crop shields the soil from run-off water. Erosion is being gradually halted.



## The CAMERA REPORTS ON CONTROL OF SOIL EROSION

**T**REMENDOUS progress has been made by state and national soil conservation services in the control of erosion to prevent the depletion of soil resources. Through educational programs and field demonstrations, fruit growers are learning that contour planting and use of cover crops will keep orchard topsoil from being blown away by the winds or washed away by rain. That erosion control effects savings now as well as in the future was portrayed by an experiment testing the effect of erosion on peach yields. It was shown that yields decrease almost proportionately to the amount of topsoil that is carried away. On this page is graphically shown some of the effects of erosion and how it may be controlled.

Above left—Planting a peach orchard on the contour prevents loss of valuable topsoil and insures a longer-lived, more profitable orchard.

Left—Severe erosion depicted here is due to plowing a steep hillside slope. Three feet of silt has been deposited in the foreground.

Bottom left—Wind erosion is taking its toll from this large square field, making it considerably less fertile and less productive.

Bottom—Conservation of soil and moisture has been made possible in this rolling peach orchard by planting the trees on the contour.



# STATE NEWS

**CONNECTICUT**—An event of unusual interest to fruit growers of Connecticut and nearby states is the coming 50th anniversary meeting of the Connecticut Pomological Society to be held November 12-14 at Hartford. Elaborate preparations are being made to celebrate 50 years of continuous activity and service of the society, as well as the development and progress of commercial fruit growing during the past half century. Prominent pomologists and outstanding fruit authorities will appear on the extensive program.

Exhibits will be a leading feature of the convention and will include displays of fruit. Several New England states will participate, under the auspices of the New England Fruit Show, Inc. There will also be an extensive trades exhibit, many of these exhibits illustrating the great improvement that has been made in machinery and materials for the culture of fruit during the past 50 years.—H. C. C. MILES, Sec'y, Milford.

**UTAH**—Recent peach plantings have been quite heavy in Box Elder County under the New Pine View dam water project and in Washington County where production is increasing rapidly. Small plantings of peaches are under way in Utah and Weber counties.

Some of the growers have used the disbudding method of training trees in their new plantings. Among these, Richard Carlquist of Salt Lake County has trees in his young peach orchard trained by both the old method of cutting the whip back to 18 and 20 inches from the ground and also by the disbudding method where the whip is allowed to remain almost its full length and the small shoots are removed in the spring where main branches are not desired.

R. G. Erchenbach of Utah County has a young peach orchard trained by the disbudding method and has found it very successful in bringing the trees into bearing at an early age. These trees are very large and yielded approximately one-half bushel per tree the second year after planting.

By this budding method of pruning much less cutting is involved than by the old method and more attention is given to summer deshoooting and disbudding, thereby forcing the growth of the tree into the permanent branches and eliminating the undesirable branches before they absorb large quantities of the food supply of the tree.—A. STARK, Sec'y, Logan.

**TENNESSEE**—Last year, when the demand for his Latham red raspberries dropped off to less than \$1.35 a crate (24 pints), J. N. Peay, Goodlettsville, put up about a hundred crates in small cartons in a sharp freezing locker storage. These were sold to a wholesaler at \$1.80 a dozen pints, which was about \$3.70 a crate. Taking off the cost of the cartons and storage, this made the net sale about \$3 per crate—more than double the price at harvest time.

Mr. Peay reports that this season, in spite of the fact that late spring freezes took half of the early crop, the many well-spaced rains permitted almost every blossom to mature a fruit and his total yield was the best to date. From time to time, as the supply exceeded ready demand, the surplus was put into one-pound and five-pound bucket-type cartons in the sharp freezer of a custom storage. He has over 3500 pounds now in storage.—A. N. PRATT, State Horticulturist, Nashville.

**IOWA**—Many experienced Iowa orchardists are planting a hardy stock such as Hiberna

## FARM PRODUCT OUTLOOK

**L**OOK for a better domestic demand for farm products during the last half of this year compared with last. No boom, no runaway prices. Simply a sound improvement based upon an expected increase in industrial production stimulated by national defense programs. All farm commodities—for immediate consumption and for reserve—are in plentiful supply. Trouble is that surpluses in some basic commodities may pile up here as result of diminished exports to Europe. New market outlets must be found if production is to be continued at current levels. Besides the increases expected from continued economic recovery, the Federal Government is trying to raise domestic consumption by means of the Food Stamp Plan, Cotton Stamp Plan, school lunch, new industrial uses, and other programs. \*\*\* Prices of farm products and cash farm income were higher this past summer than last. Income for the full year 1940 probably will be larger than in 1939.—The Agricultural Situation.

or Virginia Crab and then top-working them by budding, generally the second year after planting, to desired varieties. Bud sports being used to considerable extent are Blackjon, Jonared, Starking and Richared Delicious. Rubber bands have been found satisfactory for tying the buds. The buds are placed at least a foot out on the scaffold limbs, away from the trunk, to avoid winter injury on the trunks and crotches.—R. S. HERRICK, Sec'y, Des Moines.

**MARYLAND**—A study of the planting program in Maryland indicates that limited plantings of the old market varieties of peaches have been made, and a 1938 survey of the newer peach varieties planted showed that 108 growers had set out 20,083 trees during past years, using mainly Halehaven and Golden Jubilee. Other varieties planted in various numbers included Candoka, Cumberland,

## "AREA OF PRODUCTION" POSTPONED TO DEC. 1

**E**FFECTIVE date of the new definition of "Area of Production" has been postponed to December 1, according to official announcement by Wage-Hour Administrator Philip B. Fleming. Previous announced date was October 1.

The present definition carries through this packing season. Then, a packing house may pack any fruit brought to it from less than 10 miles, provided the packing house is located in a town of less than 2500 population, 1930 Census. This provides relief for this season for the smaller grower who cannot economically maintain a packing plant. It is to be emphasized that a grower packing his own fruit exclusively is exempt from Wage-Hour Law, no matter what distance he hauls. The Wage-Hour Division considers cooperative packing houses NOT exempt.

Eclipse, Fertile Hale, Golden East, Golden Glow, Halberta, July Elberta, Lizzie, Rio Oro Gem, Roberta, Salberta, South Haven, Valiant, Vedette and Veteran.

Apples have been planted in a conservative way. Some of the old standard varieties have been included and quite a few trees of the red bud sports, mainly those of Delicious, Rome and Stayman. In general, these varieties are satisfactory in Maryland.

The use of manure around young trees has shown wonderful benefit. Where manure is used, mice must be kept under control.—A. F. VIERHELLER, Sec'y, College Park.

**ARKANSAS**—One of the best seasons in years is favoring us this year—a season like we used to have before the weather went screwy nearly a decade ago. Quality of all fruit is high, with possible exception of too much worm damage in a few orchards. While the crop is not normal due to spring frost, it is about double that of last year.

Few late apples are being planted in this section. Some planting of early varieties, particularly Yellow Transparent, is taking place. Some small plantings of grapes are being made. The planting of peaches is considerable, with the old favorite, Elberta, predominating. — THOMAS ROTHROCK, Sec'y, Springdale.

**SOUTH DAKOTA**—"Look at those pears," was the remark most frequently heard at the Sioux Empire Fair. Closer examination of the "Pears" proved they were large pear-shaped plums of the Superior variety originated by the Minnesota Experiment Station. George W. Gurney of Yankton is credited with growing fine specimens displayed.

Thomas Miller of Hot Springs, J. B. Taylor of Ipswich and the Maxwell Orchard at Vermillion, whose apple displays won wide admiration at the State Fair, were awarded prizes for their good looking fruit.—W. A. SIMMONS, Sec'y, Sioux Falls.

**MINNESOTA**—A serious outbreak of apple maggot developed this fall in the Lake Minnetonka region near the Twin Cities, resulting in severe losses to many growers. The practice of spraying around July 20 for this pest had been largely neglected during recent years, resulting in a heavy build-up of the maggot fly. There will be renewed interest in a late spray next year. Sections of the State where late sprays were applied report little injury.

Everbearing strawberry production, which is centered around Minneapolis and St. Paul, was severely curtailed by a heat wave in mid-August followed by unseasonably cold and wet weather. Fields that normally would bear good crops in August and early September became almost dormant so far as crop production was concerned, with no prospect of production until late September. It is many years since such a complete failure of the everbearing crop has been experienced.—J. D. WINTER, Sec'y, Mound.

**LOUISIANA**—A new strawberry—the Klondike—is being introduced to Louisiana growers. Its name was derived from Klondike and Blakemore, the two varieties used in its development at the Louisiana Agricultural Experiment Station.

Tests indicate that the Klondike fruits about 10 days earlier than the Klondike, and that it is highly resistant to leaf spot and scorch. The berries are sweeter than the Klondike, hold up exceptionally well on the plant after ripening, and ship well.

## CALENDAR OF COMING MEETINGS and EXHIBITS

- Nov. 12-14—Connecticut Pomological Society 50th Anniversary meeting, Hotel Garde, Hartford.—H. C. C. Miles, Sec'y, Milford.
- Nov. 14-15—Minnesota State Horticultural Society annual meeting, also winter meeting and fruit judging contest Minnesota Fruit Growers' Association, Nov. 15, St. Paul Hotel, St. Paul.—R. S. Mackintosh, Sec'y, Horticultural Society, St. Paul; J. D. Winter, Sec'y, Growers Assn., Mound.
- Nov. 20-21—Iowa State Horticultural Society and Iowa Fruit Growers Association annual meeting, in conjunction with Little Mid-West Horticultural Exposition and Holiday Show, Ames.—R. S. Herrick, Sec'y, State House, Des Moines.
- Nov. 21-22—Tennessee State Horticultural Society annual meeting, Nashville.—G. M. Bentley, Sec'y, Knoxville.
- Nov. 25-26—South Dakota State Horticultural Society 56th annual meeting, Sisseton.—W. A. Simmons, Sec'y, Sioux Falls.
- Nov. 26-28—Nebraska State Horticultural Society annual meeting, in conjunction with Organized Agriculture, Lincoln.—E. H. Hoppert, Sec'y, Lincoln.
- Dec. 2-4—Washington State Horticultural Association 36th annual meeting, Yakima.—J. C. Snyder, Sec'y, Pullman.
- Dec. 3-5—Michigan State Horticultural Society annual meeting, Apple Show and exhibits, Civic Auditorium, Grand Rapids.—H. D. Hootman, Sec'y, E. Lansing.
- Dec. 3-5—New Jersey State Horticultural Society annual meeting, Haddon Hall, Atlantic City.—Arthur J. Farley, Sec'y, New Brunswick.
- Dec. 3-5—Virginia State Horticultural Society annual meeting, George Washington Hotel, Winchester.—W. S. Campfield, Sec'y, Staunton.
- Dec. 5-6—Kansas State Horticultural Society annual meeting, Chamber of Commerce Bldg., Kansas City.—George W. Kinkead, Sec'y, Topeka.
- Dec. 6-7—Montana Horticultural Society annual meeting, Polson.—Geo. L. Knight, Sec'y, Missoula.
- Dec. 9-10—Oregon State Horticultural Society annual meeting, Medford.—O. T. McWhorter, Sec'y, Corvallis.
- Dec. 10-12—Indiana Horticultural Society annual meeting, Indianapolis.—R. L. Winklepleck, Sec'y, Lafayette.
- Dec. 11-13—Peninsula Horticultural Society annual meeting and exhibit, Dover.—T. F. Manns, Sec'y, Newark.
- Dec. 18-20—Illinois State Horticultural Society annual meeting, Belleville.—Joe B. Hale, Sec'y, Kell.
- Jan. 8-9—Maryland State Horticultural Society 43rd annual meeting, Hagerstown.—A. F. Vierheller, Sec'y, College Park.
- Jan. 8-10—Massachusetts Fruit Growers Association annual meeting, Worcester.—Wm. R. Cole, Sec'y, Amherst.
- Jan. 13-14—Southern Illinois Horticultural Society annual meeting, Carbondale.—Cornell H. Eckert, Sec'y, Belleville.
- Jan. 14—Vermont Horticultural Society annual meeting, in conjunction with Union Agricultural meetings, Jan. 14-17, Burlington.—C. H. Blasberg, Sec'y, Burlington.
- Jan. 14-17—New York State Horticultural Society 86th annual meeting, exhibits and fruit show, Rochester.—Roy P. McPherson, Sec'y, Le Roy.
- Jan. 21-23—Maine State Pomological Society annual meeting, Armory, Lewiston.—E. L. White, Sec'y, Bowdoinham.
- Jan. 29-31—New York State Horticultural Society annual Eastern meeting, exhibits and fruit show, Kingston.—Roy P. McPherson, Sec'y, Le Roy.
- Feb. 5-6—West Virginia Horticultural Society 48th annual convention, Martinsburg.—C. R. Miller, Sec'y, Martinsburg.

OCTOBER, 1940

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AMERICAN FRUIT GROWER

PAGE 13



These handy household-size packages win preference because they do a *real* selling job.

This season be prepared to make more money on your apple crop. Alert growers are realizing higher prices and more sales by sending their better grades of apples to market in Bemis Lenonet Bags. And here are just a few reasons why:

Apples have more "eye appeal" dressed up in these neat, colorful containers. Lenonet Bags win approval on the "visible content" score . . . housewives like to see what they buy.

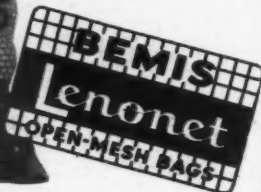
Bemis Lenonet Bags move *more* apples. Shoppers buy 5 or 10-pound bags . . . instead of 2 or 3 pounds from bulk.

Quality is protected. Free air circulation reduces spoilage . . . so your apples bring top prices.

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Economical, easily and quickly filled, Bemis Lenonet Bags make the finest fruit look even finer.

Write today for samples. We'll also send you, without obligation, a free copy of the valuable booklet, "How to Make Fruits and Vegetables Pay You More." It tells how and why Lenonet Bags increase retail sales. Mail coupon now.



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Without obligation send at once samples, prices and full details of Bemis Open-Mesh Apple Bags.

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Post Office \_\_\_\_\_

R.F.D. \_\_\_\_\_ State \_\_\_\_\_  
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## ABSCISSION

(Continued from page 7)

short area to which the bases of the flower stems are attached, is known as the peduncle. The individual flower stems are termed pedicels. Abscission or separation occurs at or a short distance above the point where the flower or fruit stem or pedicel is attached to the peduncle. In our commercial varieties of apples there is, usually, a distinct constriction in the area where the pedicel or individual stem joins the peduncle.

In the stems of flowers and young fruits, the tissues are soft, being made up of thin-walled cells (figure 3). These cells are immature and possess the power to divide, forming new cells. In the stems of flowers and young fruits which fall immediately after the dropping of the petals and during the period of the so-called "June drop," cell division occurs in the bases of the stems immediately before they drop. This cell division occurs in a plane across the base of the stem and forms a "disk" of newly formed, thin-walled cells extending about six to eight cells lengthwise of the stem. This newly formed area is known as the abscission layer.

Immediately after the formation of the abscission layer, the outer layers of the walls of cells within this layer dissolve away and the cells separate, cutting the stem in two and allowing the flower or fruit to drop. This breakdown of the outer layers of the cell walls, which cement together the cells of the tissues, is the result of chemical changes, rendering materials in the wall soluble. It is the same process which occurs in apple fruits when the apple becomes overripe or "mealy."

By the time of the completion of the "June drop," the stems of apples which are continuing their development may be considered to be mature for the purposes of this discussion. The mature stem is very hard and tough (figure 4) and the mode of abscission changes radically. Whereas cell division occurred immediately preceding the abscission of flowers and young fruits, no cell division precedes the dropping of mature apple fruits. The outermost layers of the walls of mature cells in the base of the fruit stem first swell and then these and inner portions of the outer walls dissolve

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away, allowing the separation of the cells.

In the mature stem, abscission may begin either in the outer bark (cortex) or in the innermost tissue of the stem (pith) before there is any indication of separation in other tissues. Sometimes separation begins in both these tissues at the same time.

In figure 5, abscission has begun in the outer bark at the base of the stem of a mature Golden Delicious fruit. After abscission begins in the outer bark (cortex) cell separation progresses across the other bark tissues toward the woody cylinder in the center of the stem. While most of the cells in the bark in the path of abscission separate by breakdown and dissolution of the cell walls, fiber bundles usually are snapped or torn from surrounding softer tissue by mechanical strain (figure 6).

The woody cylinder (figure 7) contains many vessels, commonly termed "water conducting tubes." These vessels are very thick walled and form a more or less continuous system lengthwise of the stem. These resist separation and are broken mechanically, probably as the result of movement caused by wind. After the bark has separated across the stem, as is illustrated in figure 7, the woody cylinder may be snapped very easily by wind action.

If abscission begins first in the pith, the course is reversed across the stem. The pith is made up largely of thick walled stone cells, much like the grit cells in the flesh of Kieffer pears. These cells separate as the result of dissolution of the outer wall layers. After separation of the pith or central stem tissue, abscission progresses across the woody cylinder which encloses the pith (figure 7). The smaller, box-shaped cells of the wood separate by dissolution of cell walls—the compounds in these outer wall layers being rendered soluble by chemical change. Vessels are broken. Possibly the shrinking of the separated cells adjacent to the vessels subject these vessels to heavy strain. As natural separation of cells continues from the wood across the bark tissues toward the outside of the stem, the point is eventually reached where the small ring or partial ring of unbroken bark is not sufficient to counteract the weight of the fruit and these remaining tissues finally are torn, completing the separation of the fruit stem and allowing the fruit to fall.

Varieties of apples react differently. Based upon the results of a study of many abscising stems, the conclusions which follow have been reached. In the case of mature Golden Delicious fruits, abscission usually begins in the outer bark (cortex) and progresses toward the

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woody cylinder in the center of the stem (figures 5, 6 and 7). On the other hand, the abscission of mature McIntosh stems usually begins in the pith and progresses toward the outer tissues of the stem. This may be verified by picking a number of mature McIntosh apples and, with the aid of a hand lens, examining the pith of the severed stems immediately after picking before the other tissues have had time to oxidize and turn brown. If abscission of the pith has occurred this tissue alone will be brown. After pith abscission is evident, dropping of the fruit will occur

within a very few days, possibly a few hours if winds are strong. Possibly this explains the tendency of McIntosh to drop more readily than some other varieties.

Limited studies indicate that Grimes usually reacts like McIntosh, while Delicious, Rome and Fameuse more often react as the Golden Delicious, abscission beginning first in the bark tissues. In Rome or Delicious, however, pith abscission may begin with or even precede bark abscission. Additional study of the behavior of the important commercial varieties is needed.

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December 5-12—For specific varieties, by regions, as needed.

Jan. 30-Feb. 6—Winter health apple sale.

March 13-20—Featured variety sale.

The apple drives last season were a big factor in disposing of the large crop.

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### APPLE MONTH

The month of November has been declared "Apple Month" by the National Apple Institute and is to be observed in restaurants and other eating places. The event is being arranged with co-operation of the National Restaurant Association. Four famous apple dishes—apple dumpling, Waldorf salad, baked apple and apple pie—will be featured by the restaurants. To support the event, the institute has issued, for chefs, a 16-page booklet of apple recipes for quantity cookery.

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## AFTEREFFECTS OF THE HURRICANE

(Continued from page 11)

Survey and obtained satisfactory control of mice in the orchard. We realize that there has been considerable mouse injury to the roots of apple trees in certain sections of southern New England. It was surprising to see, when the tree roots were exposed, just how many of these main roots had been at least partially girdled by mice before the storm.

In most cases, guy wires were wrapped around apple tree branches after using garden hose, a section of an automobile tire or some similar material to protect the branches. In spite of this protection, we find that these wires are causing some girdling of the branches. Believing that it will be necessary to have some form of guy wires on many of these trees for two or three years more, growers have been advised to check these branches and relocate the guy wires. Some growers are finding it desirable to use large screw-eyes or lag screws for fastening the wires to the trees. It is also necessary to replace some of the stakes, especially if the type of wood or size of stake was not sufficient to last.

These hurricane-damaged trees should have at least three well-placed guy wires to keep them from swaying back and forth after they have been pulled to an upright position. The stakes should be of wood that will not decay rapidly and large enough so that they will last at least two or three seasons. Some of the best stakes that the writer has observed were made from split chestnut posts that were six inches or more in diameter and these stakes were set with the split side near the tree. Iron pipe was used in some cases but unless pipes were driven at least three feet into the ground, they did not hold too well.

The guy wires used must be strong, at least a No. 10, and a galvanized wire that will not rust during the first year or two. It was necessary to use wire cable for the larger trees. With large trees where we anticipate the need of guy wires for at least five years, it may be very desirable to fasten the guy wires to short sections of planks buried horizontally in the ground. Such an anchorage system seems to be more permanent than stakes. It is hard for anyone to imagine the inconvenience of these guy wires during the orchard operations, such as mowing grass, thinning fruit and harvesting, unless he has actually worked in an orchard where such wires are present.

Growers were advised to practice light to normal pruning on these weakened trees. Continuance of a normal fertilizer program was suggested with due consideration to applying the fertilizer where the remaining tree roots could actually utilize it. The use of phosphorus and potash as well as nitrogen was suggested and in some cases this was made in two applications, one in April and the other in early June.

In 1939, definite precautions were suggested relative to the use of spray materials that would not be caustic to the foliage of these weakened trees. Growers were able to follow these suggestions and use a wettable sulphur spray program during 1939 because, with a dry season, apple scab and other fungus diseases were not serious. In 1940, with heavy rains during the early season, the problem was quite different and many fruit growers found it necessary to use liquid lime-sulphur in addition to the wettable sulphur sprays to control apple scab. Spray injury has been rather common in New England in 1940 but it seems to be especially pronounced on trees that had their roots rather badly broken by the storm.

OCTOBER, 1940

Peach trees suffered a severe loss as a result of this hurricane. Trees under four years of age seemed to recover fairly well while older peach trees that were pulled back into position and properly guyed appear to be very weak and most of these have already been pulled out.

Observation indicates that pear trees also suffered more severely than apples but there were few commercial pear orchards in the hurricane area. Perhaps because of their upright growth, pear trees were blown over further and suffered more root breakage.

We have learned from experience something about the care of trees badly damaged by a hurricane. It is unlikely, however, that conditions would be the same again should a similar storm rage in a fruit growing section. We should remember that the hurricane of 1938 did its damage on September 21 and that previous to this storm there had been heavy rains so that the orchard soils were well saturated. The growing season of 1938 had been excellent for tree growth and most trees were in a vigorous growing condition. The apples were practically all blown off the trees that were damaged, and we had excellent warm weather during October. In other words, Baldwin trees that might normally have been maturing a crop of apples until the middle of October were stripped free of fruit during the third week in September. Fruit trees in general started into the winter of 1938-39 in good vigor.

Mulching either with hay or a strawy manure was recommended and this practice proved to be very helpful, especially

during the dry season of 1939.

Although fruit thinning on these invalid trees was recommended, many trees were permitted to carry a heavy crop in 1939 and some of the McIntosh trees repeated again in 1940.

The writer has seen some 25-year-old McIntosh trees producing 25 bushels of apples per tree this year even though they were blown over in the hurricane so that the trunk was nearly in a horizontal position and one-third of the roots were exposed. The apples showed an excellent finish and about 75 per cent colored. Upon examining the root system, we found some eight to ten feet of new root growth and four to six inches of terminal growth.

Not all of our invalid trees have made this excellent recovery, but fruit growers who had vigorous growing trees on good orchard soils and who have taken real care in nursing these trees since the hurricane are naturally well encouraged. We realize that these trees that were so badly shaken by the hurricane are likely to be shorter lived. Our fruit growers are, in general, optimistic and are planting trees for replacement where hurricane trees were removed. Some of these young trees are being planted close to the trunk of invalid trees that show weakness at this time. About 15 per cent of the total apple trees in New England may finally be removed as a result of hurricane injury. Another 10 per cent will likely show weakness for several years. With the large percentage of young McIntosh trees coming into bearing, it is doubtful if the hurricane will have any serious effect upon the future apple production in New England.

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## NUT TREE PLANTING

THE planting of nut trees in the fall has several advantages in its favor. As a rule, one is much less rushed at this season of the year, and weather conditions are generally more favorable. Usually the soil is in better physical condition than in the spring, especially on the heavier soil types. Trees planted in the fall become partially established by winter and are ready for an early start in the spring. In the colder portions of the northern tier of states, especially where peach and sweet cherry trees are not hardy, it may be advisable to defer the planting of nut trees until spring.

Trees for fall planting should preferably not be dug until the leaves have been shed naturally, and should be set as promptly as possible after being received from the nursery. The tree should be set slightly deeper than it stood in the nursery and in filling in the hole, the top soil should be placed in contact with the roots. The value of peat moss in tree planting has been demonstrated with fruit trees and other plants and it may well be used in setting nut trees. For the average tree a 12-quart pail of wet peat moss is mixed with the soil in equal proportions and the mixture is used in filling the hole. Thorough working and firming of the soil around the roots is essential to a good job of tree planting.

The improved named varieties of nut trees are much superior to the usual wild seedling tree. The nuts from these trees are usually larger, thinner-shelled and of superior flavor.

The named varieties of nut trees are not usually available from the general nurseryman, but are produced by nurseries specializing in their production. A list of nurseries specializing in grafted or budded named varieties of nut trees may be had from the secretary of the Northern Nut Growers' Association. A bulletin containing suggestions as to the best varieties may be had from the College of Agriculture, Ithaca, N.Y.—GEORGE L. SLATE, Sec'y., Northern Nut Growers' Assn., Geneva, N.Y.

## FALL VERSUS SPRING PLANTING

(Continued from page 10)

trees uninjured by winter storage. 2. The disappearance of jack rabbits and the new technique of mouse control which have lessened these risks. 3. Convenience, for time and men may be available in November or early December and not in the spring. 4. The recent more general use of mulch with young trees which protects the roots.

The rodent situation is much improved. Thirty years ago many newly planted orchards were ruined by jack rabbits in a few hours' time.

The development of new poisons and baits has made possible the use of mulch with little danger from mice if careful, intelligent use is made of them.

Truck transportation makes possible the quick delivery of fresh-dug trees in the fall or spring. Many nurseries, because of soil or labor conditions, must dig much of their nursery stock in the fall so as to be able to ship promptly in the spring. When properly stored, such trees grow well. Sometimes they dry out, or the roots freeze between the time they are dug in the fall and delivered in the spring. To avoid these injuries, some growers are growing their own replacement stock so that they can plant within a few hours after the trees are dug. Southern trees may not have been exposed to very low temperatures in the nursery during winter, as sometimes happens farther north.

The cases where fall-dug trees planted in the spring have failed to start or grow satisfactorily may usually be attributed to buying "bargains," planting too late or not caring properly for the trees before planting them.

There is a tendency on the part of growers to plant sweet cherries in the fall.

## FALL-DUG TREES PREFERRED

By John Lyman  
Middlefield, Conn.

SPRING planting of fruit trees has been very generally practiced in southern New England as long as I can remember. I presume the real reason for the practice is to avoid winter injury in event of low temperatures. Most fruit trees make splendid growth the first season if planted early in the spring. And perhaps in recent years we reduce by one year the danger of mice girdling with snowstorms. More and more mouse girdling is becoming a serious factor in the growing of young trees, and perhaps the growing of older trees as well. Unless the problem is well taken care of by poisoned bait in the fall, mouse damage is apt to occur. More and more we are planting young trees in sod, which increases the hazard from mice as compared to the well plowed and harrowed fields of former years.

I prefer trees dug in the fall to those dug in the spring. Unless trees are dug almost before all the frost is out of the ground, the sap stored in the roots is apt to start the buds and damage results following digging. Unquestionably trees planted in the fall will start earlier in the spring than those held dormant in the nursery during the winter; however, the hazards of New England winters still outweigh the advantages of fall planting.

When we plant in sod we generally dig a large hole so that all the fine roots of the trees can be spread out before they are covered. Many of the apple orchards in this region are planted on old peach land that has been cultivated until most of the original humus has leached away by wind or water erosion. We use the sod mulch method of growing trees today in an effort to hold and perhaps build back some of the humus that is so sorely needed.

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By HANDY ANDY

## HOLIDAY FRUIT CONTAINERS •

The use of attractive containers is each year playing a more important part in stimulating sales of fruit during the holiday season. Enterprising growers have developed an extensive mail-order holiday trade based on the sale of well-packed, high-quality fruit, while others have used individually packaged fruits as their holiday greeting to customers, business associates, friends, relatives and others in their effort to keep the fruit industry constantly in the mind of the public.

Growers who plan to develop additional customers for the coming holiday season are



urged to place orders for holiday containers immediately, if possible, to insure receiving their packages in ample time.

Illustrated above, at the right, is an attractive gift or mail-order package manufactured by the American Box Board Company, Inc. It is a combined shipper and container unit constructed of green colored corrugated board and printed in one color. The fruit is packed in specially designed individual cell units so constructed that the fruit is carried in a "suspended state". It is obtainable in two sizes, holding 16 or 32 apples, and any size apple may be used in the cells.

In the larger illustration above is shown a 34-apple box of white corrugated board, printed in red and green, a product of the Hinde & Dauch Paper Company. A jar of honey replaces two of the apple cells and adds a unique touch to the gift package of fruit. The closed package in the illustration shows the box wrapped for the holiday trade. For year-around sales the package can be converted into a counter display.

Grease or other substances that might cause paint to peel off of new galvanized metal surfaces can be removed with a solution of eight ounces of copper sulphate in a gallon of warm water. After the chemical treatment the metal surface should be allowed to thoroughly dry before applying the paint. This chemical treatment will also prevent rust from forming under paint coat.

The U. S. Lighthouse Service uses a solution made as follows: One gallon of soft water mixed in a glass or earthenware container with two ounces each of copper chlo-

ride, copper nitrate and sal ammoniac, to which is then added two ounces of commercial muriatic acid.

## INFORMATIVE BOOKLETS •

A wealth of information on weeds and their control is contained in No. 10 of the Modern Power Farming series of booklets issued by the Allis-Chalmers Manufacturing Company. Halftone and line drawing illustrations of over 150 different kinds of weeds will enable the grower to readily identify weed pests he may be endeavoring to combat. Methods of control are given for the different weeds. The 76-page booklet, entitled, *KNOW YOUR WEEDS*, is obtainable on request.

The construction of farm ponds and farm terraces is the subject of a new booklet just released by Caterpillar Tractor Company. What track-type diesel tractors are doing to further the water and soil conservation programs in the nation is illustrated in photographs and explained in captions. The brief text gives cost figures wherever possible, and lists the equipment used on the job. The title of Form 6290 is, *BUILDING PONDS, TERRACES AND INCOMES*, and can be had for the asking.

Growers considering the construction of a cold storage plant will be interested in obtaining a copy of Johns-Manville's booklet, *ROCK CORK SHEETS AND PIPE INSULATION*, DS Series 555. Illustrations show applications of the insulating materials while text includes full description and explanation of methods of use.

AMERICAN FRUIT GROWER

## KILL RATS WITHOUT POISON

YOUR MONEY BACK IF RATS DON'T DIE



**K-R-O KILLS RATS ONLY**



The Original Ethylene Dichloride Emulsion for Use Against the

## PEACH TREE BORER

The safest, most effective and most modern chemical for control of this insect.

It is applied around base of tree, and no further attention is required. Effective at any season when mean temperature is above 40°F. and ground is not frozen.

One gallon will treat: 58—6 yr. old trees; 72—45 yr.; 96—3 yr.; 192—2 yr., and 768—1 yr.

Packed in Pts., Qts., 1/2 Gals., 1 Gal., 5 Gals., 10 Gals., 25 Gals., and 55 Gals. containers.

Write for pamphlet giving full information

THE J. W. WOOLFOLK COMPANY  
FORT VALLEY, GEORGIA

## MICHIGAN AVENUE

WHERE  
**CHICAGO**  
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Chicago works and plays to the tune of its

rhythmic hum. In the most convenient location

on this famous thoroughfare, Hotel Auditorium

provides spacious pleasant rooms, excellent

service and superb cuisine, at reasonable rates.

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MICHIGAN AT CONGRESS GEO. H. MINK, Manager

# SUCCESSFUL ORCHARDS

● A "ROUND TABLE" PAGE FOR EVERY GROWER ●

## STOPS DEER DAMAGE WITH WIRE FENCE

"MY young orchard thrived through its first summer," writes Herbert E. Stover who is a grower in Pennsylvania, "but by spring there were trees that had almost every branch mutilated to some degree by deer.

"In the succeeding season we tried everything we knew or could learn: tarred paper cones, scent bags, scarecrows, heavy lime-sulphur sprays, rifle bullets. Deer tracks were so close to the scarecrows that I believe the deer had his nose in the ragged man's pockets for sugar, and leaves were cropped the night after a heavy spray was applied. One time I counted 300 trees injured out of 500. Then I began fencing.

"Our first attempt was barbed wire on high chestnut posts. Wires were placed about 10 inches apart. For a month I eyed that prickly fence with pride, then I found tracks. My deer were back and they had brought the boys along!

"Barbed wire may annoy deer but it does not stop them. Once I watched a big doe go right through the wire. A deer thrusts its head through and just follows. We even tried tying cross wires in place without success. In desperation we obtained state wire, No. 9 gage, weighing 30 pounds to the rod, stiff and unwieldy. We fought that wire into place on the bottom of our posts all around 25 acres. Above it we strung three strands of barbed wire, and we had won our battle.

"Deer like yellow apples. Yellow Transparent is their favorite. Rome Beauty twigs suffered most, next Yellow Delicious. Stayman and Red Delicious didn't show much injury.

"Were I to fence again, I would use a lighter gage wire, No. 10 or even less. It is easier to handle and cheaper to apply. The woven part need not be over four feet high, for a deer cannot leap into the air and twist through between barbed wires. I would brace each post and pull the wire with a tractor.

"Yes, the answer so far is a fence, but we are keeping our fingers crossed. A bear came in last fall. We found where he had rolled under the fence. I am glad bears are rare. Once they get to raiding there is no safe place for a busy apple tree excepting a safe deposit box in a bank."

## INVENTS GIRDLING DEVICE TO HASTEN PRODUCTION

OHIO grower James Dutton uses his own homemade girdling knife to ring the branches of trees which are tardy coming into bearing. It consists of two razor blades separated about one-fourth of an inch by a wooden handle six inches long.

Mr. Dutton writes: "I think it inadvisable to girdle the trunk as it is likely to dwarf the tree. The girdle should be protected from insects and infection by use of grafting wax or tape. For use on bigger parts of the tree or for patch budding, the width of the girdle can be varied by changing the thickness of the handle."

This is a page where growers get together for an exchange of experiences and ideas. Both the beginner and veteran will find here many valuable suggestions for better and more profitable fruit growing. In return for helps you receive from this page, pass on your new ideas, methods or procedures. Just jot them down and mail to **ROUND TABLE EDITOR, AMERICAN FRUIT GROWER**. One dollar will be paid for each item published.

## MAKES OWN METAL TAGS

BECAUSE wooden tags for identifying young trees usually weather so badly that after several years it is impossible to read what was written on them, C. A. Skelton of British Columbia devised his own metal tag to mark his trees.

"The tag can be made quickly with a pair of tinner's snips and a nail for a punch," claims Grower Skelton.

The sample tag Mr. Skelton forwarded is three inches long by one inch wide and is made of tin. At one end a hole has been punched so that the tag can be attached by wire to a tree. The name of the variety has been inscribed by means of many small holes punched in the tin.

## BUILDS MOBILE FRUIT LADDER

CLYDE ROMIG of the Romig Brothers' Fruit Farm in Pennsylvania, designed his own fruit ladder which can be easily

moved about and is steady at all times.

The illustration at the left shows the portable ladder which is tilted at an angle, thus permitting ready access to all parts of the tree.

The picture below shows a close-up of Mr. Romig's ladder. He built it himself out of three lengths of steel tubing, some lumber and hardware and a pair of automobile wheels. By grasping the handles as Mr. Romig demonstrates, the ladder can be easily pushed to any part of the orchard. The long tongue formed by the joined ends of the steel tubing helps to support the ladder, as do the chains fastened to the shafts near the handles and to the ladder near the top.

A ladder like this makes picking in large apple trees much easier and lessens the chance of injury from falling. Because the picker is not on a sometimes wobbly ladder, there is also less chance of damage to the fruit and to the tree.



## THE ECONOMY TRUCKS

# FORD

Big jobs are in the making for 1941. They're jobs that have got to be done fast, efficiently, economically. Here are the 1941 Ford Trucks that are built to meet these present-day dimensions for dollar-saving dependability.

They "have everything." Choice of power. Range of wheelbases. Wide range of body and chassis types. And the kind of economy that really counts — *over-all* economy.

The 95-hp Ford V-8 engine has an extra margin of horsepower not offered in any other low-price truck, and sells at several hundred dollars less than any other truck with equal horsepower rating. The 95-hp engine is teamed up with the famous Ford 85-hp engine that has proved its dependability and economy in billions of miles of payload performance.

There's new styling and there are many new

improvements and refinements. Above all, there is the down-to-earth quality and economy that have made Ford V-8 a symbol of dollar-saving performance in nearly every kind of hauling and delivery work.

See the Ford V-8 Truck at your Ford dealer's. Put one to work on your job and test it your own way. Prove to yourself that this is the unit to do your job, in less time, at lower cost.

### 1941 FORD FEATURES

Two V-8 engines — 95 and 85 hp ★ New 4-cylinder 30-hp engine for maximum economy in Commercial Cars,  $\frac{1}{4}$  and One-Ton Trucks ★ Six wheelbases — 42 body and chassis types ★ Full-floating rear axles in all trucks — ring gear thrust plate ★  $\frac{1}{4}$ -floating axle in Commercial Cars ★ Straddle-mounted driving pinion ★ Big hydraulic brakes ★ Two-speed axle as well as reinforced frame in trucks for heavy-duty service are optional at extra cost.

Ford Motor Company, builders of Ford V-8 and Mercury Cars, Ford Trucks, Commercial Cars, Station Wagons and Transit Buses

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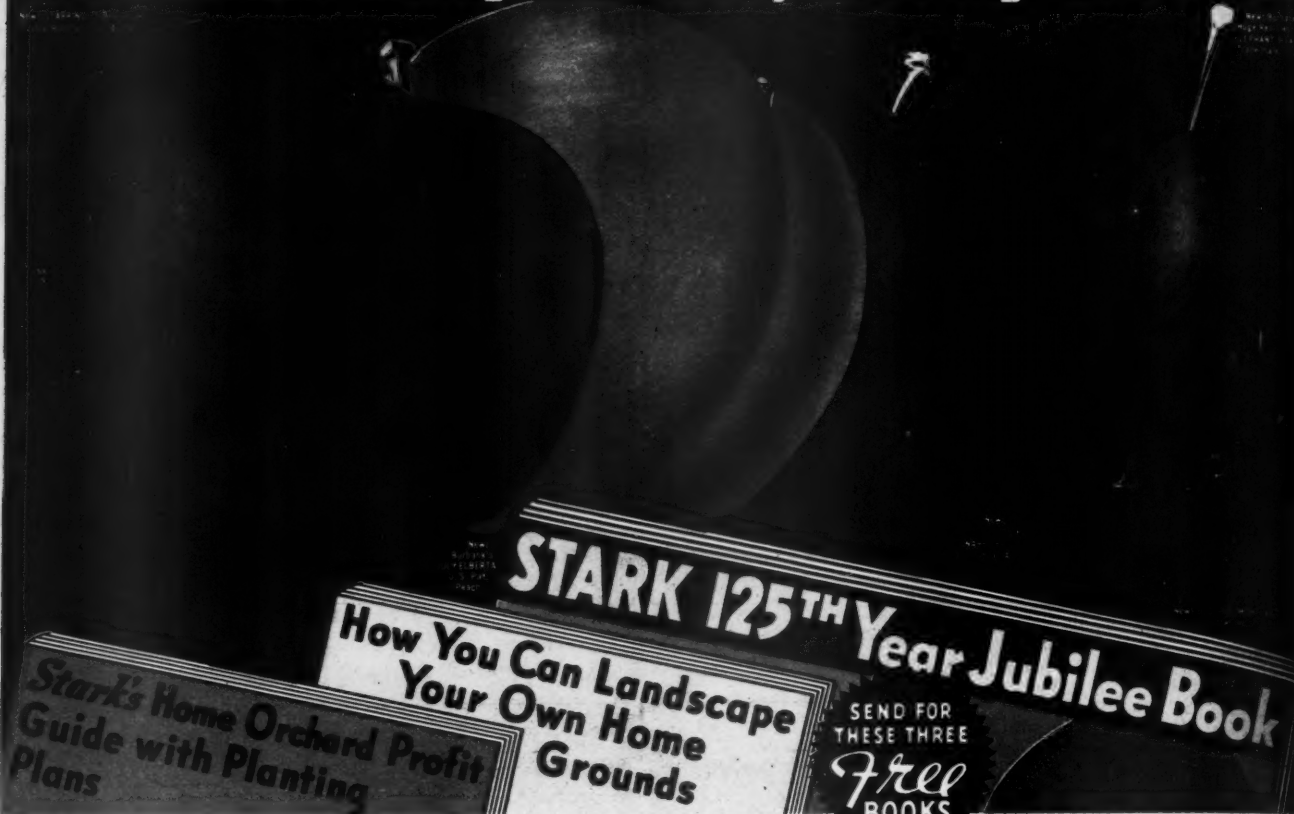
150" Stake  
Dual wheels and tires  
at extra cost

112" Pick-Up

134" Tractor with Semi-trailer  
Dual wheels and tires at extra cost

112" Sedan Delivery

# QUICKER Profits - BIGGER Yields - TOP-MARKET Prices With STARK Young-and-Heavy-Bearing Fruit Trees



## FREE Big NEW Stark JUBILEE Fruit Book Brings 125 Years Experience Growing World's Finest Fruits

Many thousands of American Fruit Grower Readers have preferred and planted Stark Trees. Outstanding financial successes—Fine Profits year after year are being made by commercial orchardists all over the country with Stark Young-and-Heavy-Bearing Prize Fruit Trees. And now a new day is dawning for growers of quality varieties—the outlook for BIG PROFIT is brighter than for many years.

### Slash Living Costs with a Home Orchard

A small plot of ground planted in STARK Young-and-Heavy-Bearing Prize Fruit Trees will yield handsome dividends. Fresh fruits throughout the season, full of health-giving vitamins, to enrich your diet and reduce living costs—fruit jams, jellies and preserves to relieve the monotony of winter meals—even extra fruit to sell at fancy prices and fine profits.

### Bright PROFIT Future for Growers of These Super-Quality Fruits

These two Greatest of all apple varieties—STARKING and GOLDEN DELICIOUS—are the biggest, most consistent profit-producers of all commercial apples—millions of new consumers, year after year, are becoming enthusiastic buyers of these leaders of the apple world. They bring TOP-MARKET Prices and Splendid PROFITS to fruit-growers, large and small. STARKING, Improved Double-Red Delicious, mammoth King of all red apples, colors solid, flashing red-all-over weeks earlier. Stays crisp and juicy—long-keeping—has exquisite flavor. GOLDEN DELICIOUS, Queen of Quality of all yellow apples, is the most sensational of all fruit discoveries. It is the perfect All-Purpose Apple. Its distinctive flavor makes it the favorite of millions—best for eating fresh—for baking—for dumpings, pies and salads. GOLDEN DELICIOUS trees are extremely hardy, resist drought and freezes—orchardists in 33 states report bearing in 2 years. STARKING and GOLDEN DELICIOUS apples command highest market prices—often 30% to 50% more than for standard varieties.

Also FREE—Stark's "Home Orchard Profit Guide" With Planting Plans  
Don't let lack of experience stop you—this helpful book gives you expert guidance—

tells how to plant and how to market fruit. It includes planting plans, simple diagrams and complete information that make it EASY to grow STARK Prize Fruits. It gives pointers on getting the most out of the land, planting between rows, etc.—Roadside Stands and how to get biggest profits. Don't fail to check Coupon for this Valuable Book.

### NEW, Exclusive U. S. Pat. Fruits—Shrubs—Roses

Shown in Stark's Big JUBILEE Fruit Book are many Prize Fruits to be found nowhere else—fruits sold only by Stark Bro's—the HAL-BERTA GIANT Peach—Burbank's JULY ELBERTA sensational new, early yellow freestone, extremely hardy peach—ELEPHANT HEART Plum, Burbank's great red-fleshed freestone discovery—and scores of other EXCLUSIVE fruit wonders that will add profit and pleasure to your living.

### FREE—Stark Book—"How YOU Can Landscape Your Own Home Grounds"

In the Stark JUBILEE Book you will also find a host of Ornamental Beauties—Flowering Shrubs, Roses, Shade Trees—the famous fragrant Burbank COFFEE CLIMBER, SNOWHITE and GOLDEN SUNSET Climbing Roses—Burbank's wonderful double Rose-Flowering Peach Trees (all U. S. Pat.) and many other remarkable Plant Creations. Beautify your yard—increase your property value—plant Stark Ornamentals—they will be a never-ending source of joy and pleasure. Don't fail to also check Coupon to receive the Stark Book "How You Can Landscape Your Own Home Grounds"—full of information on landscaping and care of home-grounds—FREE. Stark FREE TREES Offer—Our liberal offer of FREE Stark Trees is open to Stark customers—details will be sent with the Big NEW 125-Yr. JUBILEE Fruit Book. Check Coupon for all Three FREE BOOKS.

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## \$443.48 in 1 Month SELLING STARK TREES

I may plant.....Trees.....  
(Number) (Kind)  
Name.....  
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St. or R.F.D.....State.....

In one recent month we paid H. H. Rathbin \$443.48 CASH for sales of STARK Trees, Shrubs and Roses—the month before, he received \$502.98. YOU, too, can be your own boss in this dignified, healthful, PROFITABLE occupation. Work Spare Time or full time—no investment required. No experience necessary to start—we show you how and supply everything you need to make a Good Income in this EASY pleasant work as many other STARK salesmen from all walks of life are doing—all over the country. This 125-year-old Company leads in EXCLUSIVE Patented Fruit and Ornamental Varieties desired by home-owners—in cities, suburbs, farms—everywhere. Check Coupon NOW for our LIBERAL WEEKLY CASH INCOME PLAN.



If you are interested in selling Stark Trees—Shrubs—Roses, CHECK HERE for our LIBERAL WEEKLY CASH INCOME Plan for Salesmen

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